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Spring management of winter annual weeds in no-till

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Spring management of winter annual weeds in no-till

by Bob Hartzler, Department of Agronomy

The number of Iowa fields with winter annual weed infestations continues to increase as more fields are maintained in no-till systems. The lack of data documenting the impact of winter annuals on crop establishment and crop yield complicates determining how to best manage this group of weeds. Currently, growers are faced with the decision to spray an infested field as soon as conditions allow or to wait to kill the winter annuals at planting.

It should be safe to assume that vegetation from intentionally planted winter annual cover crops would affect crop growth similarly as that of winter annual weeds. United States Department of Agriculture researchers at the National Soil Tilth Laboratory in Ames found that cover crops allowed to grow until planting can reduce crop yields and concluded that risks to yields from cover crops are minimized by controlling the cover crop at least 10 to 14 days before planting. Corn yields were more likely to be affected by cover crops than soybean yields. Their research suggests that winter annual weeds allowed to grow until planting can negatively affect yields.



Patchy infestations of winter annuals complicate management decisions. (Bob Hartzler)

So should any no-till field with winter annuals be sprayed in early to mid-April to reduce risks of crop yield loss? The answer is no. Many fields have scattered infestations of winter annuals that cover less than 10 to 20 percent of the entire field. While the weeds may have a negative impact on crop growth in the patches, the total damage may not exceed the cost of spraying the entire field. Most of the cover crop research was done with winter rye, a species that produces abundant biomass in the spring. While many winter annual weeds may produce

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similar amounts of foliage as cover crop species (e.g., field pennycress), others produce much less vegetation and thus are less likely to impact crop growth. Thus, the specific winter annuals in a field must be identified and their growth habit understood.

The decision on how to manage winter annual weeds should be based on a subjective evaluation of the percent of field infested and growth habit of the particular weeds. Fields with uniform infestations of aggressive weed species may warrant burndown applications several weeks ahead of planting to minimize risks of yield losses. In addition to reducing risks of yield losses, winter annual weeds are easier to control in early/mid-April than later in the season. Another advantage of early application is that seed production by the winter annuals will be reduced, therefore possibly reducing infestations in subsequent years.

Winter annual weeds are not as big a threat to crop yields as summer annuals that compete directly with the crop; however, effective management of these weeds is required to maximize yields and profits.

Bob Hartzler is a professor of weed science with extension, teaching, and research responsibilities.

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